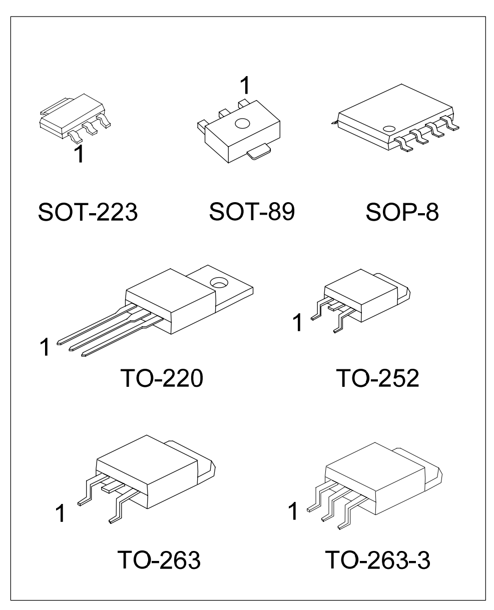


UNISONIC TECHNOLOGIES CO., LTD

LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATORS



*Pb-free plating product number:
LD1117L-xx / LD1117AL-xx

■ DESCRIPTION

The UTC LD1117/A is a low dropout, 3-terminal positive voltage regulator designed to provide output current up to 800mA/1A, There are adjustable version (V_{REF}=1.25V) and various fixed versions.

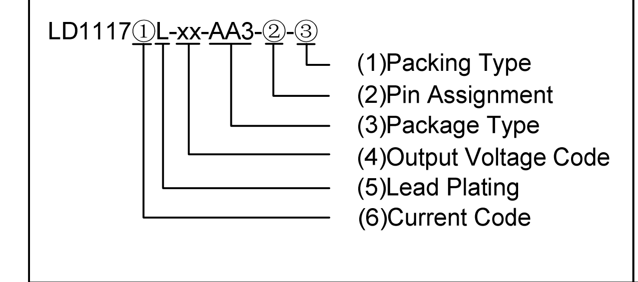
■ FEATURES

* Low dropout voltage
* Suitable for SCSI-2 active termination if V_{OUT} set to 2.85V
* Output current up to 0.8A for 1117 and 1.0A for 1117A
* Built-in current limit and over temperature protection
* Available in ±1%(at 25°C) and 2% in all temperature range
* Low current consumption

■ ORDERING INFORMATION

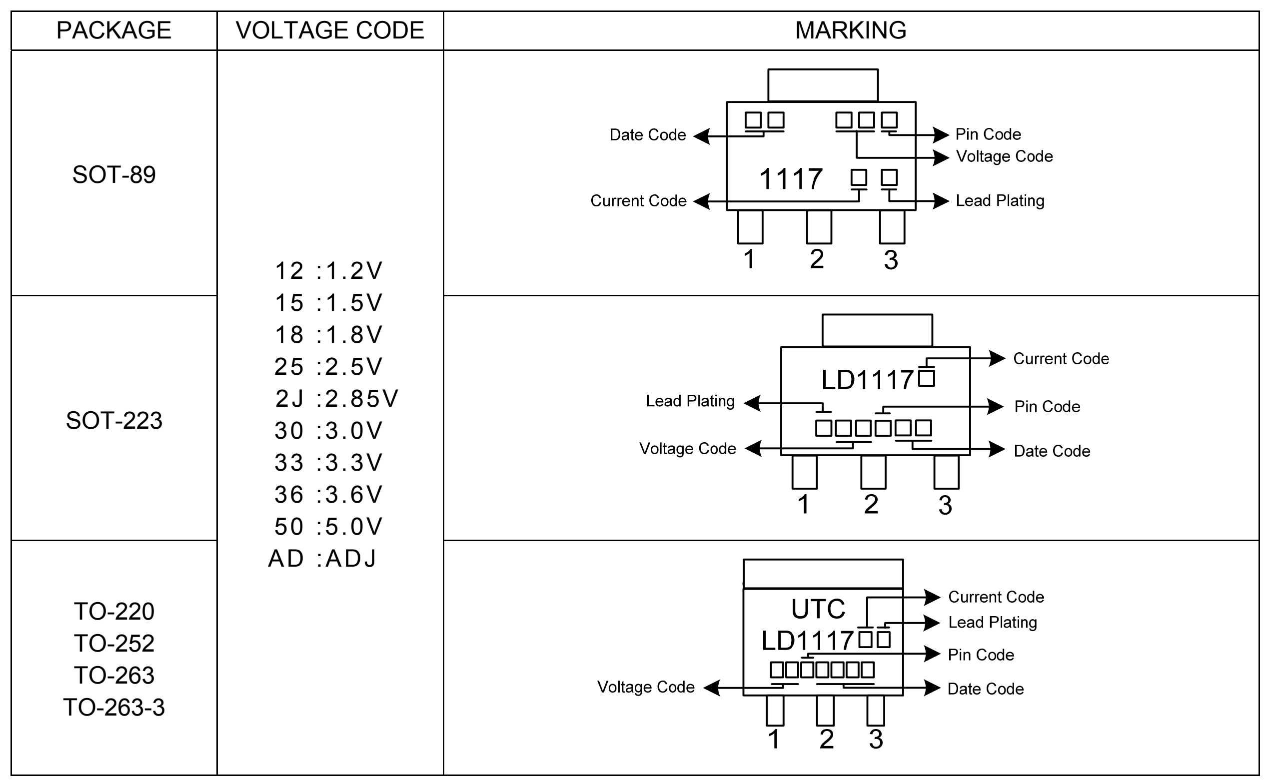
Order Number		Package	② Pin Assignment	③ Packing
Normal	Lead Free Plating			
LD1117①-xx-AA3-②-③	LD1117①L-xx-AA3-②-③	SOT-223	A: GOI B: OGI C: GIO D: IGO	R: Tape Reel T: Tube
LD1117①-xx-AB3-②-③	LD1117①L-xx-AB3-②-③	SOT-89		
LD1117①-xx-TA3-②-③	LD1117①L-xx-TA3-②-③	TO-220		
LD1117①-xx-TN3-②-③	LD1117①L-xx-TN3-②-③	TO-252		
LD1117①-xx-TQ2-②-③	LD1117①L-xx-TQ2-②-③	TO-263		
LD1117①-xx-TQ3-②-③	LD1117①L-xx-TQ3-②-③	TO-263-3		
LD1117①-xx-S08-②-③	LD1117①L-xx-S08-②-③	SOP-8	GOOIxOOx	

Note: Pin Assignment: I:V_{IN} O:V_{OUT} G:GND



(1) R: Tape Reel, T: Tube
(2) refer to Pin Assignment
(3) AA3: SOT-223, AB3: SOT-89, TA3:TO-220, TN3: TO-252, TQ2: TO-263, TQ3: TO-263-3, S08: SOT-8
(4) xx: refer to Marking Information
(5) L: Lead Free Plating, Blank: Pb/Sn
(6) Blank: 800mA, A: 1A

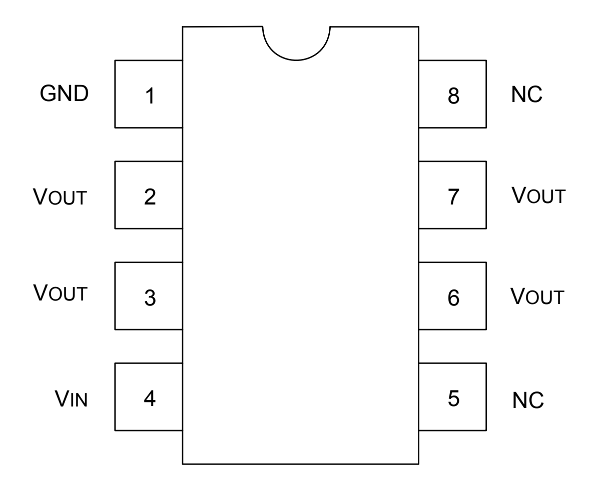
■ MARKING INFORMATION



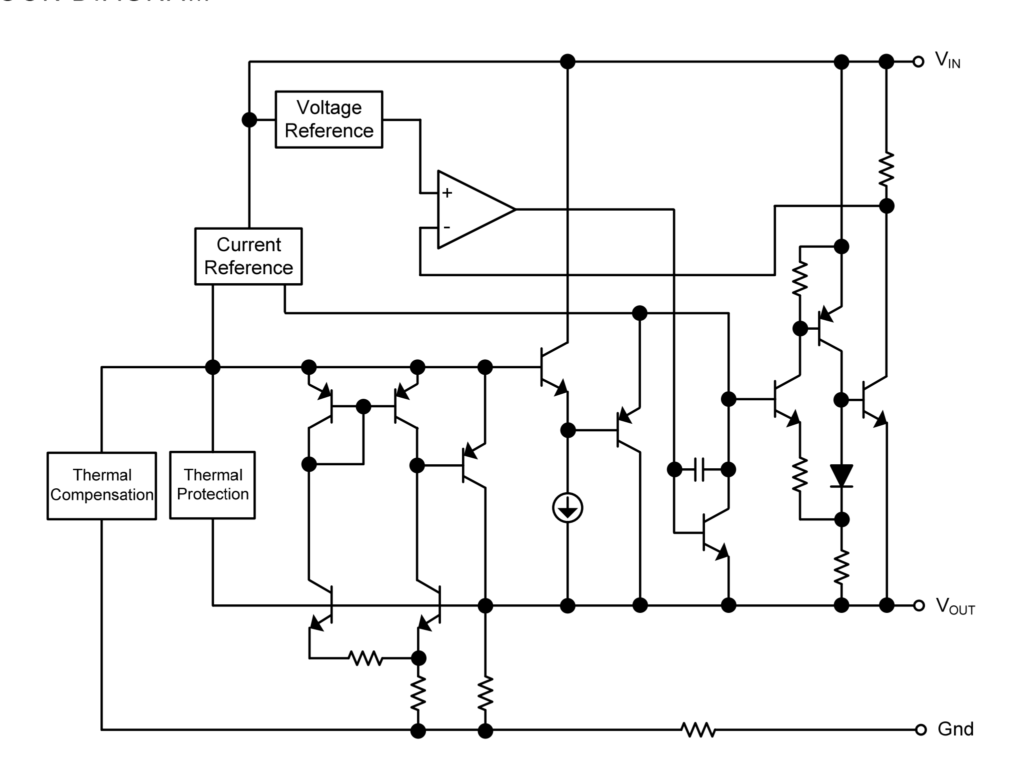
PACKAGE	VOLTAGE CODE	MARKING
SOT-89	12 :1.2V 15 :1.5V 18 :1.8V 25 :2.5V 2J :2.85V 30 :3.0V 33 :3.3V 36 :3.6V 50 :5.0V AD :ADJ	
SOT-223		
TO-220 TO-252 TO-263 TO-263-3		

Note: Current code: Blank: 0.8A A: 1A

■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
DC Input Voltage	V_{IN}	18	V
Power Dissipation	P_D	Internally limited	
Junction Temperature	T_J	+150	°C
Storage temperature	T_{STG}	-65 ~ +150	°C

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ RECOMMENDED OPERATING RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	15	V
Operating Junction Temperature Range	T_J	0 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS

(Ta=25℃, refer to the test circuits, T_J=0 to 125°C, Co=10µF unless otherwise specified)

For LD1117/A-1.2

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=3.2V, I_{OUT}=10mA, T_J=25°C		1.188	1.200	1.212	V
Output Voltage	V_{OUT}	V_{IN}=2.7 to 8V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1.0A		1.176	1.200	1.224	V
Line Regulation	ΔV_{OUT}	V_{IN}=2.7 to 8V, I_{OUT}=0mA			1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=2.7V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA			1	10	mV
Temperature stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_Q	V_{IN}≤10V			5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=6.2V, T_J =25°C	LD1117	800			mA
			LD1117A	1000			
Minimum Load Current	$I_{O(MIN)}$	V_{IN}=15V			2	5	mA
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C			100		µV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=4.2V, V_{RIPPLE}=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA I_{OUT}=500mA I_{OUT}=800mA I_{OUT}=1000 mA			1.00 1.15 1.20 1.20	1.10 1.25 1.30 1.30	V V V V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

■ ELECTRICAL CHARACTERISTICS(Cont.)

For LD1117/A-1.5

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=3.5V, I_{OUT}=10mA, T_J=25°C	1.485	1.500	1.515	V
Output Voltage	V_{OUT}	V_{IN}=3 to 8V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1.0A	1.470	1.500	1.530	V
Line Regulation	ΔV_{OUT}	V_{IN}=3 to 8V, I_{OUT}=0mA		1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=3V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA		1	10	mV
Temperature stability	ΔV_{OUT}			0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C		0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA			15	V
Quiescent Current	I_Q	V_{IN}≤10V		5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=6.5V, T_J =25°C LD1117	800			mA
		V_{IN}=6.5V, T_J =25°C LD1117A	1000			mA
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C		100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=4.5V, V_{RIPPLE}=1Vpp	60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA		1.00	1.10	V
		I_{OUT}=500mA		1.15	1.25	V
		I_{OUT}=800mA		1.20	1.30	V
		I_{OUT}=1000 mA		1.20	1.30	V
Thermal Regulation		Ta=25°C, 30ms Pulse		0.01	0.10	%/W

For LD1117/A-1.8

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=3.8V, I_{OUT}=10mA, T_J =25°C	1.780	1.800	1.820	V
Output Voltage	V_{OUT}	V_{IN}=3.3 to 8V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA	1.760	1.800	1.840	V
Line Regulation	ΔV_{OUT}	V_{IN}=3.3 to 8V, I_{OUT}=0mA		1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=3.3V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA		1	10	mV
Temperature stability	ΔV_{OUT}			0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C		0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA			10	V
Quiescent Current	I_Q	V_{IN}≤8V		5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=6.8V, T_J =25°C LD1117	800			mA
		V_{IN}=6.8V, T_J =25°C LD1117A	1000			mA
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C		100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=5.5V, Vripple=1Vpp	60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA		1.00	1.10	V
		I_{OUT}=500mA		1.15	1.25	V
		I_{OUT}=800mA		1.20	1.30	V
		I_{OUT}=1000 mA		1.20	1.30	V
Thermal Regulation		Ta=25°C, 30ms Pulse		0.01	0.10	%/W

■ ELECTRICAL CHARACTERISTICS(Cont.)

For LD1117/A-2.5

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=4.5V,I_{OUT}=10mA, T_J=25°C	1%	2.475	2.500	2.525	V
			2%	2.450	2.500	2.550	
Output Voltage	V_{OUT}	V_{IN}=3.9 to 10V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1.0A	2%	2.450	2.500	2.550	V
			4%	2.400	2.500	2.600	
Line Regulation	ΔV_{OUT}	V_{IN}=3.9 to 10V, I_{OUT}=0mA			1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=3.9V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA			1	10	mV
Temperature stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_Q	V_{IN}≤10V			5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=7.5V, T_J =25°C	LD1117	800			mA
			LD1117A	1000			
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C			100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=5.5V, Vripple=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA			1.00	1.10	V
		I_{OUT}=500mA			1.15	1.25	V
		I_{OUT}=800mA			1.20	1.30	V
		I_{OUT}=1000 mA			1.20	1.30	V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

For LD1117/A-2.85

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=4.85V, I_{OUT}=10mA, T_J =25°C		2.828	2.850	2.880	V
Output Voltage	V_{OUT}	V_{IN}=4.25 to 10V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1.0A		2.790	2.850	2.910	V
Line Regulation	ΔV_{OUT}	V_{IN}=4.25 to 10V, Io=0mA			1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=4.25V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA			1	10	mV
Temperature stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_Q	V_{IN}≤10V			5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=7.85V, T_J =25°C	LD1117	800			mA
			LD1117A	1000			
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C			100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=5.85V, Vripple=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA			1.00	1.10	V
		I_{OUT}=500mA			1.15	1.25	V
		I_{OUT}=800mA			1.20	1.30	V
		I_{OUT}=1000 mA			1.20	1.30	V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

■ ELECTRICAL CHARACTERISTICS(Cont.)

For LD1117/A-3.0

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=5V,I_{OUT}=10mA,T_J =25°C	1%	2.970	3.000	3.030	V
			2%	2.940	3.000	3.060	
Output Voltage	V_{OUT}	V_{IN}=4.5 to 10V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1.0A	2%	2.940	3.000	3.060	V
			4%	2.880	3.000	3.120	
Line Regulation	ΔV_{OUT}	V_{IN}=4.5 to 12V, I_{OUT}=0mA			1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=4.5V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA			1	10	mV
Temperature stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_Q	V_{IN}≤10V			5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=8V, T_J =25°C	LD1117	800			mA
			LD1117A	1000			
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C			100		µV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=6V, V_{RIPPLE}=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA			1.00	1.10	V
		I_{OUT}=500mA			1.15	1.25	V
		I_{OUT}=800mA			1.20	1.30	V
		I_{OUT}=1000 mA			1.20	1.30	V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

For LD1117/A-3.3

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=5.3V,I_{OUT}=10mA, T_J=25°C	1%	3.267	3.300	3.333	V
			2%	3.235	3.300	3.365	
Output Voltage	V_{OUT}	V_{IN}=4.75 to 10V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1.0A	2%	3.235	3.300	3.365	V
			4%	3.160	3.300	3.440	
Line Regulation	ΔV_{OUT}	V_{IN}=4.75 to 15V, I_{OUT}=0mA			1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=4.75V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA			1	10	mV
Temperature stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_Q	V_{IN}≤15V			5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=8.3V, T_J =25°C	LD1117	800			mA
			LD1117A	1000			
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C			100		µV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=6.3V, V_{RIPPLE}=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA			1.00	1.10	V
		I_{OUT}=500mA			1.15	1.25	V
		I_{OUT}=800mA			1.20	1.30	V
		I_{OUT}=1000 mA			1.20	1.30	V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

■ ELECTRICAL CHARACTERISTICS(Cont.)

For LD1117/A-3.6

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=5.6V, I_{OUT}=10mA, T_J =25°C		3.564	3.600	3.636	V
Output Voltage	V_{OUT}	V_{IN}=5 to 10V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1.0A		3.528	3.600	3.672	V
Line Regulation	ΔV_{OUT}	V_{IN}=5 to 15V, I_{OUT}=0mA			1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=5V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA			1	10	mV
Temperature stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_Q	V_{IN}≤15V			5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=8.6V, Tj=25°C	LD1117	800			mA
			LD1117A	1000			
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C			100		µV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=6.6V, V_{RIPPLE}=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA I_{OUT}=500mA I_{OUT}=800mA I_{OUT}=1000 mA			1.00 1.15 1.20 1.20	1.10 1.25 1.30 1.30	V V V V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

For LD1117/A-5.0

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	V_{IN}=7V,I_{OUT}=10mA, T_J =25°C	1%	4.950	5.000	5.050	V
			2%	4.900	5.000	5.100	
Output Voltage	V_{OUT}	V_{IN}=6.5 to 15V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1.0A	2%	4.900	5.000	5.100	V
			4%	4.800	5.000	5.200	
Line Regulation	ΔV_{OUT}	V_{IN}=6.5 to 15V, I_{OUT}=0mA			1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}=6.5V LD1117 : I_{OUT}=0 ~ 800mA LD1117A : I_{OUT}=0 ~ 1000mA			1	10	mV
Temperature stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_Q	V_{IN}≤15V			5	10	mA
Current Limit	I_{LIMIT}	V_{IN}=10V, T_J =25°C	LD1117	800			mA
			LD1117A	1000			
Output Noise Voltage	eN	B=10Hz to 10KHz, T_J =25°C			100		µV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}=8V, V_{RIPPLE}=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA I_{OUT}=500mA I_{OUT}=800mA I_{OUT}=1000 mA			1.00 1.15 1.20 1.20	1.10 1.25 1.30 1.30	V V V V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

■ ELECTRICAL CHARACTERISTICS(Cont.)

For LD1117/A-ADJUSTABLE

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Reference Voltage	V_{REF}	V_{IN}-V_{OUT}=2V, I_{OUT}=10mA, T_J =25°C		1.238	1.25	1.262	V
Reference Voltage	V_{REF}	V_{IN}-V_{OUT}=1.4 to 10V LD1117 : I_{OUT}=10 ~ 800mA LD1117A : I_{OUT}=10 ~ 1000mA		1.225		1.275	V
Line Regulation	ΔV_{OUT}	V_{IN}-V_{OUT}=1.5 to 13.75V, I_{OUT}=10mA			0.035	0.200	%
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT}=3V LD1117 : I_{OUT}=10 ~ 800mA LD1117A : I_{OUT}=10 ~ 1000mA			0.10	0.400	%
Temperature stability	ΔV_{OUT}				0.50		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J =125°C			0.3		%
Operating Input Voltage	V_{IN}					15	V
Adjustment Pin Current	I_{ADJ}	V_{IN}≤15V			60	120	µA
Adjustment Pin Current Change	ΔI_{ADJ}	V_{IN}-V_{OUT}=1.4 to 10V, LD1117 : I_{OUT}=10 ~ 800mA LD1117A : I_{OUT}=10 ~ 1000mA			1	5	µA
Minimum Load Current	$I_{O(MIN)}$	V_{IN}=15V			2	5	mA
Current Limit	I_{LIMIT}	V_{IN}-V_{OUT}=5V, T_J =25°C	LD1117	800			mA
			LD1117A	1000			
Output Noise (%Vo)	eN	B=10Hz to 10KHz, T_J =25°C			0.003		%
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J =25°C, V_{IN}-V_{OUT}=3V, Vripple=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}=100mA I_{OUT}=500mA I_{OUT}=800mA I_{OUT}=1000mA			1.00 1.15 1.20 1.20	1.10 1.25 1.30 1.30	V V V V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Thermal Resistance Junction-Case	SOT-223	θ_{JC}	15	°C/W
	SOP-8		20	
	TO-252		12	
	TO-220		4	
	TO-263		4	
Thermal Resistance Junction-Ambient	SOT-223	θ_{JA}	165	°C/W
	SOP-8		150	
	TO-252		112	
	TO-220		54	
	TO-263		64	

■ TYPICAL APPLICATIONS

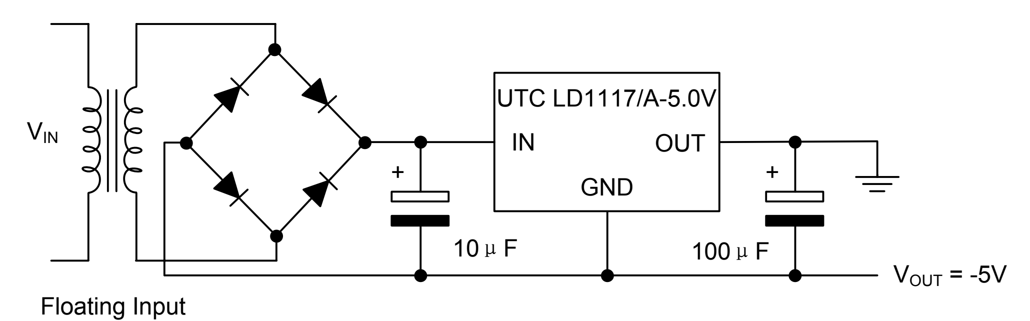


FIG.1 Negative Supply

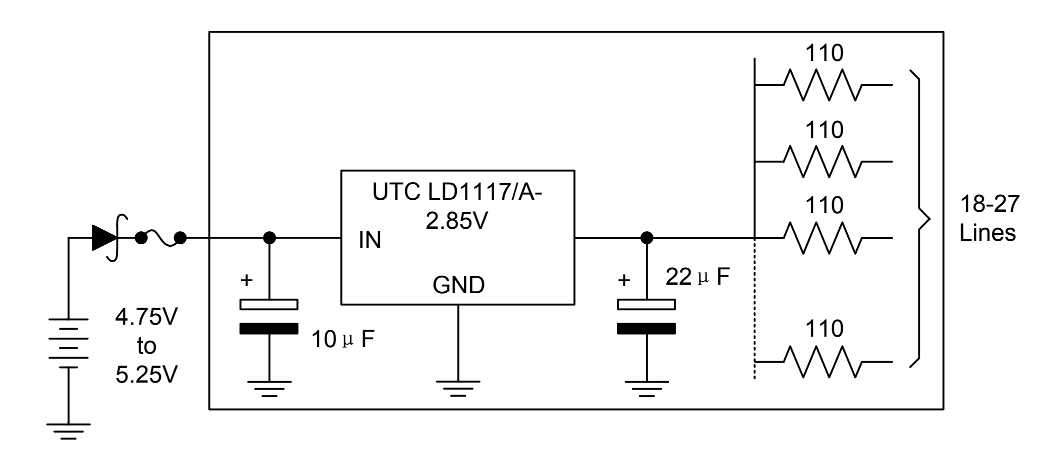


FIG.2 Active Terminator for SCSI-2 BUS

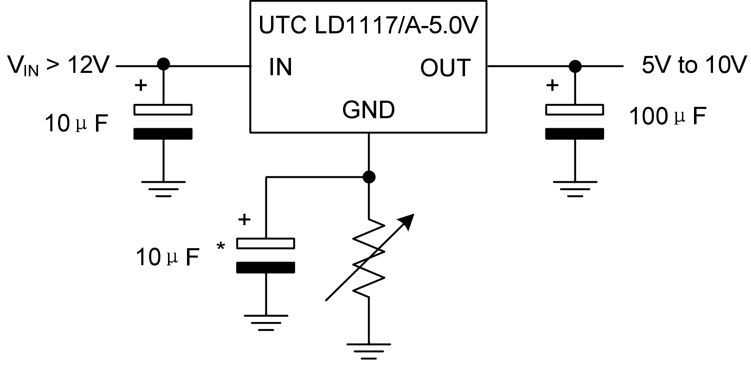


FIG.3 Circuit for Increasing Output Voltage

■ APPLICATION NOTE of LD1117/A ADJUSTABLE

The LD1117/A ADJUSTABLE has a reference voltage of between the OUT and ADJ pins. I_{ADJ} is 60µA typ. (120µA max.) and ΔI_{ADJ} is 1µA typ. (5µA max.).

R1 is normally fixed to 120Ω.

From figure 4 we obtain:

$V_{OUT}=V_{REF}+R2(I_{ADJ} + I_{R1})=V_{REF} + R2(I_{ADJ} + V_{REF} / R1)=V_{REF}(1+R2/R1) + R2 \times I_{ADJ}$.

Usually R2 value is in the range of few KΩ, so the R2 X I_{ADJ} product could be neglected; then the above expression becomes: $V_{OUT}=V_{REF}(1+R2/R1)$

For better load regulation, realize a good Kelvin connection of R1 and R2 is important. Particularly R1 connection must be realized very close to OUT and ADJ pin, while R2 ground connection must be placed as near as possible to the negative Load pin. Ripple rejection can be improved by introducing a 10µF electrolytic capacitor placed in parallel to the R2 resistor (See Fig. 5)

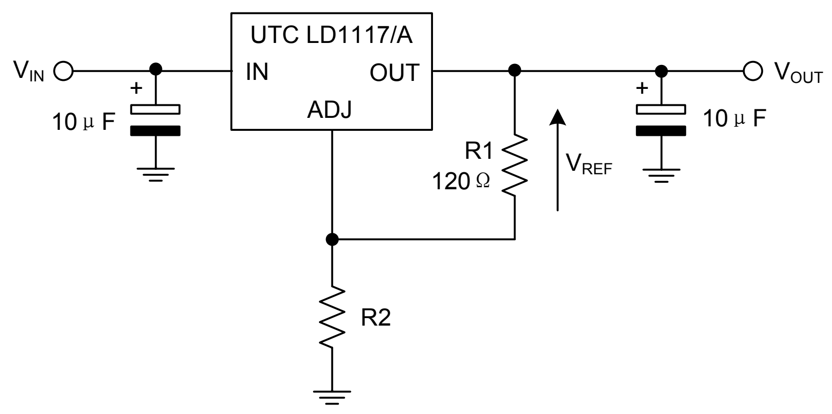


FIG.4 Adjustable Output Voltage Application Circuit

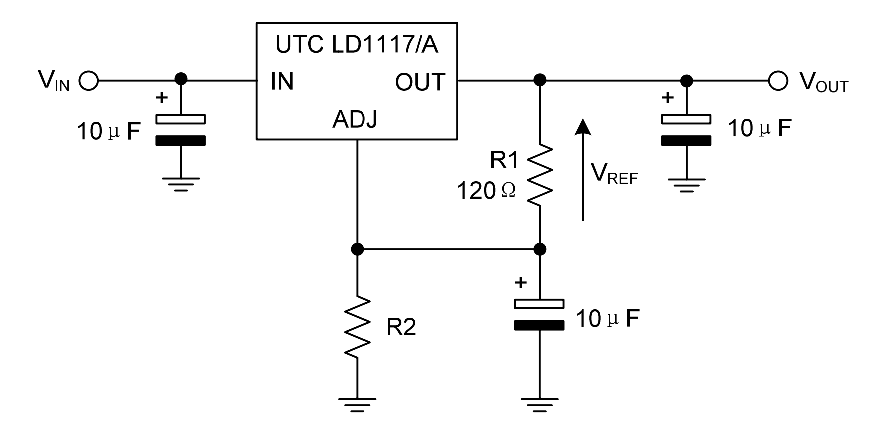


FIG.5 Adjustable Output Voltage Application with improved Ripple Rejection.

■ TYPICAL PERFORMANCE CHARACTERISTICS

